

 <p>US Army Corps of Engineers Pacific Ocean Division</p>	<p align="center">Lahaina, Maui, Groundwater Tracer Study Planning Assistance to States Project Management Plan</p> <p align="center">29 December 2011 UPDATED 9 May 2012</p>	 <p align="center">Honolulu District</p>
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1. **Purpose:** This Project Management Plan (PMP) provides a detailed plan for management and execution of the Lahaina, Maui, Groundwater Tracer Study conducted by the US Army Corps of Engineers (USACE), Honolulu District (POH) under the U.S. Army Corps of Engineers' Planning Assistance to States (PAS) Program. The plan includes a work scope, study schedule, budget and cost estimates, and a resource allocation plan. All plans developed in the PMP have been reviewed and concurred in by the Project Delivery Team (PDT). The PMP has been prepared in accordance with [Engineer Regulation 5-1-11, 17 August 2001, USACE Business Process](#).
2. **Authority:** [Section 22 of the Water Resources Development Act of 1974](#), as amended, provides authority for USACE to assist the states, local governments, and other non-Federal entities in the preparation of comprehensive plans for the development, utilization, and conservation of water and related land resources.
3. **Relationship to Cost Sharing Agreement:** This PMP is a supplementary document to the Cost Sharing Agreement (CSA), which provides the legal framework on the rules, responsibilities, and cost sharing to be mutually agreed upon by the non-Federal sponsor and USACE on the production and course of the study. The CSA specifically addresses the cost sharing requirements, method and timing of payment, and related matters. The CSA between POH and the State of Hawaii, Department of Health (DOH), the non-Federal sponsor, was executed on 17 November 2010.
4. **Project Location:** The study will cover the area southwest of the Lahaina Wastewater Reclamation Facility in Lahaina, Island of Maui, State of Hawaii out past the submerged groundwater seeps off the shore of Kahekili Beach Park as depicted in Figures 1 and 2.
5. **Project Scope.** The Lahaina Wastewater Reclamation Facility (LWRF or facility) disposes of wastewater effluent into injection wells located approximately 1900 feet from the shoreline between Black Rock and Honokowai Point, Lahaina, Hawaii. The scope of this project is to conduct a tracer study to confirm the locations of the emerging discharge of injected effluent into the coastal marine waters and determine a travel time from the facility's injection wells to coastal waters. More detailed information on study scope and methodology is available in the Cooperative Agreement between the USACE Engineer Research and Development Center (ERDC) and the University of Hawai'i at Mānoa (UH), "Lahaina Groundwater Tracer Study, Lahaina, Maui, Hawaii", W912HZ-11-2-0020, dated 26 April 2011.



Figure 1: Lahaina Groundwater Tracer Section 22 Study Location Map



Figure 2: Location Map of Submerged Groundwater Seeps, Kahekili Beach Park

5. Sponsor Expectations: By letter dated 8 September 2010, the sponsor, DOH, identified the need for the investigation. The study is considered:

- ☐ a routine request for assistance.
- ☒ important to meet an existing or recurring need.
- ☐ extremely important because of a critical need.

6. **Product Delivery Plan/Acquisition Strategy:** DOH proposed work-in-kind funded by the U.S. Environmental Protection Agency (EPA) as 100% match for this activity. EPA approved the use of funds in accordance with Section 2007 of the Water Resources Development Act of 2007 in a letter dated 10 August 2010. The acquisition strategy for this project is for DOH and POH to both access UH to conduct the study in two parts. Via the Cooperative Ecosystems Studies Unit (CESU) agreement administered by ERDC, POH tasked UH with the Phase I activities of background assessment, field reconnaissance, literature review and tracer design plan. Through State of Hawaii procurement processes, DOH tasked UH to conduct the Phase II activities of tracer study implementation and interpretation the findings and results. EPA, as a partner, is providing technical subject matter expertise and quality assurance/quality control of the study development and implementation. Table 1 provides a breakdown of the project delivery plan.

Because the acquisition strategy utilized the CESU Agreement via ERDC, no analysis of small business use was required. ERDC, as the Contracting Officer, handles all compliance issues related to the CESU agreement.

Table 1: Project Delivery Plan

Task	POH	ERDC	DOH	EPA	UH	Comment
Project Management	X		X			POH will manage Phase I; DOH will manage Phase II
Contract Management		X	X			ERDC will manage Phase I; DOH will manage Phase II
Phase I Activities					X	
Phase II Activities					X	
Final Report Compilation	X				X	
QC Review	X		X	X		EPA and DOH will be primary leads for QC review

7. **Schedule:** Table 2 provides a schedule of study implementation.

Table 2 was updated on 4 May 2012 to include the additional monitoring and evaluation activities funded by DOH beyond those required to meet the cost share requirements of this study. These activities are noted as Phas

Table 2: Lahaina Tracer Study Project Schedule

Task	Start/Finish Date	Comments
CSA Execution	17 Nov 2010	
CESU Task Award to UH ¹	1 Jan 2011 / 26 Apr 2011	
DOH Task Award to UH ²	1 Jan 2011 / 30 Jul 2011	
Phase I Field Reconnaissance ¹	30 May 2011 / 30 Sep 2011	TIR Flight
Phase I Tracer Study Design and Workplan ¹	1 May 2011 / 9 Aug 2011	

Phase I Background Assessments ¹	20 Jun 2011 / 1 Jul 2011	Terrestrial & Marine
Phase II – Dye Injection and Monitoring ²	28 Jul 2011 / EST Dec 2012	First dye injected 28 July 2011; 2nd dye injection 11 Aug 2011. 1st dye first detected 24 Oct 2011. 2nd dye injection not detected as of 1 Jan 2012. It is expected that detectable concentrations of 1st dye will continue to be discharged well past 30 June 2012. Through additional support from DOH (Mods #2 and #3), UH will continue tracer sampling through December 2012.
Phase II – Nutrient/Geochemical and Radon/Radium Survey ²	19 Sep 2011 / 25 Sept 2011	Terrestrial & Marine
Phase II – Preliminary Analysis and Interpretations ²	1 Apr 2012 / 30 Apr 2012	Dependent upon the date of peak dye-concentration detection. Establishment of the peak dye concentration is needed for average time of travel estimation. The best estimate of elapsed time between first detection to peak concentration is approximately four months
Draft Initial Report ¹	1 May 2012 / EST 31 May 2012	UH will submit an initial report summarizing Phase I findings and Phase II preliminary results from 28 Jul 2011 to 30 Apr 2012.
Final Initial Report ¹	EST 1 Jun 2012 / 30 Jun 2012	Completion of the final is dependent upon comments being received within 2 weeks of draft submittal.
Draft Supplemental Tracer Report ²	EST 1 Jan 2013 / 30 Jan 2013	Dictated by obtaining a reasonable part of the breakthrough curve. A Supplemental Tracer Report will be submitted as an addendum within 60 days of the termination of dye sampling.

Final Supplemental Tracer Report ²	EST 1 Feb 2013/29 Feb 2013	Completion of the final is dependent upon comments being received within 2 weeks of draft submittal.
Project Closeout/After Action Review	30 Mar 2013	

¹Actions funded by USACE

²Actions funded by DOH/EPA

8. **Resource Allocation Plan:** Table 3 provides a breakdown of cost allocations. Table 3 was updated on 4 May 2012 to include the supplemental monitoring DOH/EPA are funding as part of the study. The supplemental monitoring is 100% non-federal funding. It is proposed in addition to the \$150,000 submitted as work-in-kind.

Table 3: Lahaina Tracer Study Cost Estimate

<u>TASK</u>	<u>ESTIMATED COST</u>	<u>POH FUNDED</u>	<u>DOH WORK IN- KIND</u>
Project Management	\$14,000	\$14,000	--
Finance/Accounting	\$5,000	\$5,000	--
USACE P2 Scheduling/Reporting	\$2,500	\$2,500	--
Inter-Island Travel	\$500	\$500	--
TOTAL Phase I Tasks	\$125,000	125,000 ^A	--
<i>CESU Researcher</i>	<i>\$101,750</i>	<i>\$101,750^A</i>	--
<i>CESU Researcher DOH (17%)</i>	<i>\$ 17,298</i>	<i>\$17,298^A</i>	--
<i>ERDC Contract Oversight (5% of total CESU)</i>	<i>\$5,952</i>	<i>\$5,952^A</i>	--
TOTAL Phase II Tasks	\$280,928	--	\$280,928
<i>Original</i>	<i>\$140,000^A</i>		<i>\$140,000^A</i>
<i>Mod #1</i>	<i>\$31,246^A</i>		<i>\$31,246^A</i>
<i>Mod #2</i>	<i>\$30,556</i>		<i>\$30,556</i>
<i>Mod #3</i>	<i>\$79,126</i>		<i>\$79,126</i>
Report Compilation	\$2,000	\$2,000	--
QC Review	\$1,000	\$1,000	--
TOTAL	\$430,928	\$150,000	\$280,928

9. **Communication Strategy:** The primary method of communication between POH, DOH, EPA and UH is via project delivery team (PDT) meetings and teleconference calls. UH will provide regular updates to POH, DOH, and EPA. As necessary, meetings with Maui County, as the primary stakeholder, will occur to provide updates and progress on the study. Based on the study progress, UH will recommend when information is appropriate to release to a larger audience. The PDT (POH, DOH, EPA and UH) will determine the best methods to release information to the larger public – e.g. press releases or notifications. If it is determined that an information meeting is appropriate, EPA and DOH will coordinate any associated outreach as public meetings are not incorporated into the study scope. In accordance with the CESU

agreement, UH will determine when and which peer review journals would be appropriate for publication and will notify POH, DOH and EPA. Unless requested by UH, POH, DOH and EPA will not have any input on the publication process.

Interagency and internal communication and execution shall be consistent with the study priority. The PM will serve as primary point of contact with sponsor, however direct contact between PDT members and customer is acceptable as required. The PM will ensure the PMP is on the local area network for accessibility to the PDT and the USACE Pacific Ocean Division (POD), and will inform the customer of all changes requiring PDT approval via e-mail (or most efficient option). The PM will conduct PDT meetings, and other team meetings regularly throughout the duration of the study as required by study activities and issue resolution. The PM will conduct public, community, and local agency informational meetings as necessary. Public affairs considerations shall be part of every project. Project managers will seek public affairs guidance on media and communications issues and all media contacts and responses will be coordinated with the Public Affairs Office.

10. Change Management Plan: The PM will amend all changes to study scope, costs, and schedules of the PMP with concurrence of the PDT. The PM shall approve the schedule revisions if within established milestone thresholds. If the proposed schedule changes affect the Command Management Review compliance, the PM shall secure the endorsement by the Chief, Engineering and Construction for concurrence and the Deputy District Engineer for Programs and Project Management (DPM) for approval. Any project on the PRB shall require approval from the Deputy District Engineer for Programs and Project Management (DPM) and concurrence from the Chief, Engineering and Construction for milestone changes. Schedule changes will be noted in Appendix A.

11. Quality Management Plan: The documentation provided for this project shall be in compliance with Headquarters, USACE regulation and guidance on quality management objectives. Actions provided by the team shall include technical review of engineering, planning, and policy issues, adherence to all customer expectations as appropriate, to assure quality measures are provided in products. In A-E and professional service actions, consultants shall provide Quality Control Plans to assure similar levels of quality maintenance. The PM shall address the adherence to quality requirements in product review meetings and after action reports. For the purposes of this study, EPA will act as the technical subject matter expert to conduct the District Quality Control (DQC) of the products delivered.

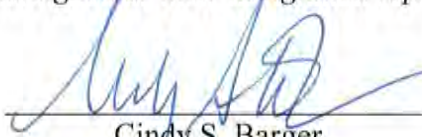
12. Quality Objectives: The quality objectives for this PMP will be measured by the milestone dates as referenced in Table 2.

13. After Action Review (AAR): The purpose of an AAR is to learn from, improve upon, and document successes and deficiencies of studies and projects. The goal of an AAR is to improve study processes, products and customer satisfaction. The project manager will conduct an AAR upon completion of the feasibility phase. PDT members shall participate in the AAR.

Lahaina, Maui Groundwater Tracer Study
Project Management Plan
Planning Assistance to States

Statement of Agreement: *We, the undersigned, agree to follow the provisions of this PMP. Each activity will focus its efforts and influence to provide complete comprehensive, up-front planning and to meet the objectives of completing the study, design & construction for this project and for fulfilling the using agency's needs and to meet quality, safety and reliability of expectations, with minimum changes, within budget, and within schedule. Changes to the scope, schedule, costs, strategy, or Project Delivery Team members, included in this plan, must be coordinated with and approved by the undersigned or their designated representatives and fully documented.*

Project Manager:
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Date: 17 Jan 12

Sponsor:
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Mr. Daniel Chang

Date: 11 Jan 2012

EPA
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Mr. David Albright

Date: 5 Jan 2012

University of Hawaii at Manoa
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Dr. Craig Glenn

Date: 5 Jan 2012

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Date: 17 Jan 12

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Mr. Glenn Rhett

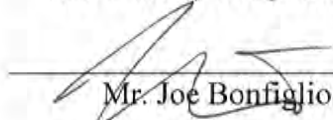
Date: 30 Dec 2012

Office of Counsel:
Legal Review (808) 438-8395

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Date: 3 Jan 2012

Public Affairs Office:
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Mr. Joe Bonfiglio

Date: 31 JAN 2012

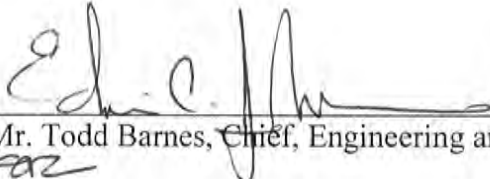
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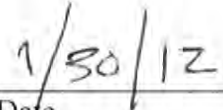
Date: 12 Jan 2012

Lahaina, Maui Groundwater Tracer Study
Project Management Plan
Planning Assistance to States

Concurred:




Mr. Todd Barnes, Chief, Engineering and Construction Division
TAR

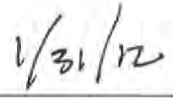


Date

Approved:



Mr. Tony Paresa, Deputy District Engineer for Programs and
Project Management



Date

Appendix A

Slip Notes

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